



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, D.C. 20460

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OFFICE OF  
ENFORCEMENT AND  
COMPLIANCE ASSURANCE

Docket Management Facility, M-30  
U.S. Department of Transportation, West Building  
Ground Floor, Room W12-140  
1200 New Jersey Avenue, SE  
Washington, DC 20590

**RE: Draft Environmental Impact Statement for New Corporate Average Fuel Economy Standards, Passenger Cars and Light Trucks, MY 2011-2015, Docket Number NHTSA-2008-0060**

To Whom It May Concern,

In accordance with our responsibilities under the National Environmental Policy Act (NEPA) and Section 309 of the Clean Air Act, the Environmental Protection Agency has reviewed the National Highway Traffic Safety Administration's (NHTSA) Draft Environmental Impact Statement (DEIS) for Corporate Average Fuel Economy Standards. In this DEIS, NHTSA considers the potential environmental impacts of new fuel economy standards that NHTSA is proposing pursuant to the Energy Independence and Security Act of 2007 for model year 2011-2015 passenger cars and light trucks.

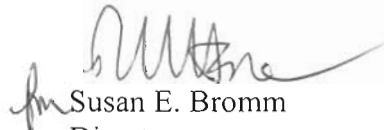
For the purposes of the DEIS, NHTSA has evaluated a "No Action" alternative, an "Optimized" alternative, representing the proposed CAFE standard by which net benefits are maximized given the assumptions used in the document, and five other alternatives ranging from less stringent to more stringent than the "optimized" alternative. While the range of alternatives evaluated appears to be broad, EPA has several concerns with the methodology used to determine the relative benefits and costs of the alternatives analyzed. EPA believes that the EIS can be improved and a more accurate determination of benefits and costs would result.

We rate the document EC-2 (Environmental Concerns – Insufficient Information). A summary of EPA's rating criteria is enclosed. While EPA is supportive of the effort to raise fuel economy standards and believes that all of the action alternatives would result in environmental benefits when compared to the no-action alternative, we do have

significant concerns with the data used in the DEIS and the range of alternatives found therein.

We appreciate the opportunity to review and provide comment on the DEIS and are prepared to provide assistance to NHTSA as the environmental review process moves forward. If you have any questions please contact Robert Hargrove at 202-564-7157 or James G. Gavin at 202-564-7161.

Sincerely,



Susan E. Bromm  
Director  
Office of Federal Activities

Enclosures (2):

Detailed Comments  
EPA's Summary of NEPA Rating Definitions

## Detailed Comments

### **A: Comments on NHTSA Corporate Average Fuel Economy Standards DEIS**

#### ***Fuel Price Assumptions***

The DEIS uses official 2008 AEO Early Release fuel price projections of \$2.04-\$3.37 per gallon in the relevant timeframe. EPA's work with the Volpe Model, as well as the High Fuel Price sensitivity analyses presented in Section IX of the Preliminary Regulatory Impact Analysis (PRIA) associated with the CAFE Notice of Proposed Rulemaking (NPRM), indicates that the Volpe model is very sensitive to fuel price projections. Using projections at the high end of the AEO range would change the base case (as the market reacts to higher fuel prices) and the projected net benefits, and it would likely increase the level of the "optimized" fuel economy standard. EPA urges NHTSA to carefully consider projections for fuel prices and notes the important nexus between this estimate and future projections for the Final EIS.

#### ***Discount Rate***

NHTSA uses a 7 percent discount rate to future benefits in determining the "optimized" fuel economy standard. The sensitivity analysis performed in the DEIS using a discount rate of 3 percent shows that a lower discount rate has a substantial effect on future carbon dioxide reductions. As such, using a 3 percent discount rate significantly increases the projected societal benefits, as shown in Section IX of the PRIA, indicating a higher "optimized" fuel economy standard. EPA recommends that NHTSA consider using a 3 percent discount rate for GHG benefits as part of its primary analysis. While a 7 percent discount rate may be reasonable to apply to the cost savings realized by consumers who invest in fuel economy, EPA questions whether such a high discount rate can be justified for the long-term benefits associated with GHG reductions.

#### ***Climate Change and the Social Cost of Carbon***

NHTSA selected a single marginal benefits value of \$7.00/tCO<sub>2</sub> to represent the social cost of carbon (SCC) for their main analysis. This value and the \$0-14/tCO<sub>2</sub> range NHTSA considers are characterized as domestic SCC estimates. While OMB guidance instructs Agencies to consider benefits that accrue to US residents, it does allow for the additional consideration of global benefits. Given that US emissions have global externalities, NHTSA should analyze global SCC estimates in addition to any domestic estimates to more fully capture all of the externalities. This could be justified from the fact that US citizens may value impacts felt outside our borders. Moreover, to the extent that the United States regards the CAFE standards as a component of its contribution to a global effort to address climate change, a global SCC is needed to accurately characterize that contribution. It is also important that NHTSA recognize that the current monetized estimates of marginal benefits are incomplete and very likely underestimated.

Therefore, EPA recommends that NHTSA do Volpe runs with a range of domestic and global SCC estimates that capture the uncertainty in estimates and the potential risks of significant climate change impacts. The ranges and growth rates should be based in the peer reviewed literature and should cover a substantial range, given the wide uncertainties in estimates of the SCC. For example, see the estimates and discussion in the “Technical Support Document on the Benefits of Regulating GHG Emissions” developed in support of EPA’s Advanced Notice of Proposed Rulemaking (found at [www.regulations.gov](http://www.regulations.gov); search on “Technical Support Document – Benefits”).

It should also be noted that SCC estimates are only a partial accounting of the social costs of carbon. NHTSA does not currently account for the non-monetized impacts and potential catastrophic risks of climate change in its decision-making approach. The IPCC WGII (2007) report states that SCC values are “very likely” underestimated, where the report defines “very likely” as a greater than 90% probability. The models used to generate the SCC estimates cited by NHTSA leave out major types of climate change damage that have been identified by the IPCC.

Furthermore, most SCC estimates exclude the value of avoiding or reducing the risk of potential catastrophic effects of climate change, due to scientific and economic uncertainties. It is noteworthy that the risk of such effects is one of the major policy considerations for Congress, the public, and the executive branch in developing a climate change mitigation policy, yet is excluded in most economic analysis. Risk increases with increases in the rate and magnitude of climate change, due to a greater chance to stress systems. NHTSA should clearly note in the DEIS that emissions reductions reduce the probability of higher climate outcomes and therefore reduce the level of associated risk and acknowledge that benefits estimates do not include a risk premium, i.e., the value people have for greater certainty and the reduced risk of more extreme outcomes.

Finally, EPA is concerned that NHTSA has not accounted for non-CO<sub>2</sub> GHG emissions changes that would be expected with the policy, e.g., changes in fuel use will bring changes in non-CO<sub>2</sub> GHG emissions associated with fossil fuel extraction, production, transportation, refining, and combustion. Also, the social cost of a non-CO<sub>2</sub> GHG can be quite different from the social cost of carbon dioxide emissions (IPCC WGII, 2007). NHTSA should estimate the global changes in non-CO<sub>2</sub> GHG emissions and apply, or at least acknowledge, non-CO<sub>2</sub> marginal benefits estimates.

### ***Additional Climate Change-Related Comments***

While EPA believes that the overall methodology used by NHTSA to model climate effects for the different CAFE scenarios using MAGICC is sound, EPA does have some recommendations that would strengthen the analysis performed. EPA would recommend re-running the analysis using the revised version (5.3) of MAGICC, which incorporates climate models used in IPCC’s Fourth Assessment Report. We would also suggest running MAGICC using a range of climate sensitivities to reflect the 2.0-4.5° C range projected in the IPCC report. Finally, for the emissions scenarios analyzed, EPA would suggest using A2, A1B, A1FI, and B2. We would suggest adding some text

indicating that recent socioeconomic and emissions trends are higher than those captured by SRES and even more recent scenarios.

Additionally, EPA has the following questions and comments regarding the climate projections used by NHTSA:

1. Why was the SRES A1B chosen as the baseline scenario? How does it compare to current trends? Other potential futures should be considered.
2. What climate sensitivity was used? If only a climate sensitivity of 3 was considered, then NHTSA has ignored the implications for the distribution of potential climate outcomes in 2030, 2060, and 2100.
3. There are inconsistencies in the treatment of climate and other analyses:
  - a. NHTSA is using an SRES A1B emissions scenario for climate projections, yet using a mean SCC estimate based on a variety of climate projections;
  - b. NHTSA is combining a domestic estimate of the SCC with global climate variables; and
  - c. NHTSA is using SRES A1B emissions for global climate, yet is using US EPA emissions for transportation which are not consistent with A1B.

Finally, EPA recommends that the DEIS discussion of climate change tipping points be expanded somewhat in the FEIS to include a brief discussion of the impacts associated with a given tipping element, and to include a reference to additional tipping elements identified by the scientific community (see Lenton, T. M., Held, H., Kriegler, E., Hall, J. W., Lucht, W., Rahmstorf, S. and Schellnhuber, H. J. (2008). Tipping elements in the Earth's climate system. Proceedings of the National Academy of Sciences, Online Early Edition. February 4, 2008), including:

- Increase in the El Nino Southern Oscillation
- Collapse of the Indian summer monsoon
- Greening of the Sahara/Sahel and disruption of the West African monsoon
- Dieback of the Amazon rainforest
- Dieback of the Boreal Forest

### ***Other Environmental Concerns***

EPA believes the DEIS could be strengthened (page 3-88) by adding supporting information on the topic of hazardous materials. We recommend the DEIS document in more detail that future efforts at downweighting of vehicles by substitution of aluminum, plastics, composites, and synthetic materials for steel and ductile iron parts, will not result in a net (overall) increase in the hazardous waste stream, and that if there are any increases, these will be manageable under current technologies.

Some published studies have also suggested that the trend toward substitution of lighter weight aluminum for steel in autos increases energy demands and may result in

increased pollution from bauxite mining, alumina refining, and aluminum smelting operations. The DEIS should cite current research on how the substitution of lighter weight materials can avoid significant effects on water or biological resources, and reduce CO<sub>2</sub>. The DEIS simply states that the “projected reduction in fuel production and consumption as a result of the proposed action and alternatives may lead to a reduction in the amount of hazardous materials and wastes created by the oil extraction and refining industries.” No mention is made of the consequences/impacts of the increasing substitution to lighter weight materials.

Finally, the DEIS states that impacts to land use and development “could include increased agricultural land use” due to increasing use of biofuels. As mentioned above, increased mining is also a potential impact as the search grows for raw materials to create new lightweight materials and hybrid structures. Mining and related land disturbance activities could also have an impact on water resources and aquatic health, particularly where increasing sediment runoff in rivers and streams is an issue.

### ***Characterization of Mobile Source Air Toxics***

In several locations in section 3.3.1, the description of hazardous air pollutants emitted by mobile sources (mobile source air toxics, or “MSATs”) analyzed in the DEIS is mischaracterized and incorrectly cited. EPA recommends the following revisions and clarifications:

Page 3-11: As Section 112(b) of the Clean Air Act is not relevant to mobile sources and the analysis in the DEIS does not include all of the hazardous air pollutants, EPA recommends the following edit:

“The air quality analysis assesses the impacts of the alternatives with respect to criteria pollutants and some hazardous air pollutants from mobile sources (also known as mobile source air toxics.) ~~Hazardous Air Pollutants (HAPs, also known as toxic air pollutants or air toxics) as defined under Section 112(b) of the CAA.”~~

Page 3-13: As EPA has not identified a specific list of priority MSATs, including in the MSAT final rule, we recommend the following edit to the fourth paragraph:

~~“The relevant air toxics for this analysis are referred to by EPA and Federal Highway Administration (FHWA) as the priority Mobile Source Air Toxics (MSAT). The priority MSATs~~ The MSATs included in this analysis are acetaldehyde, acrolein, benzene, 1,3-butadiene, diesel particulate matter (DPM), and formaldehyde (EPA, 2008). DPM is a component of exhaust from diesel-fueled vehicles and falls almost entirely within the PM<sub>2.5</sub> particle size class.”

In addition, page 3-13 states that the description of the health effects of the six Federal criteria pollutants is adapted from EPA, 2008b. This does not appear to be properly referenced. There is no EPA 2008b listed in the references, and neither of the EPA 2008 references appear to be relevant here.

Page 3-15: Similarly, as EPA has not identified a list of priority MSATs, we request deletion of the word “priority” to describe the MSATS referenced. Furthermore, we believe that Claggett and Houk, 2006 is an inappropriate source for the information presented. A summary of health effects should be referenced to a more primary source (such as EPA’s Integrated Risk Information System), or EPA’s own synthesis of health effects (such as the 2007 MSAT rule preamble and/or RIA).

Page 3-16 cites EPA, 2008 as the reference for EPA’s MSAT rule. This is an incorrect reference. The MSAT rule was published in 2007, and the full details of that reference are in footnote 16.

Page 3-20: For the section on treatment of incomplete or unavailable information, EPA recommends the following addition, indicating the limitations of the modeling done for upstream emissions of MSATs:

“Data used to estimate upstream emission impacts on air toxics are significantly older than data for criteria pollutants and use of more recent and complete data could affect results. In addition, all upstream toxic emissions were assigned to refinery processes, which could lead to over assignment of air toxic emissions to areas with refineries and an under assignment to areas without them.”

Page 3-23 indicates that upstream MSAT emissions were estimated using the DOE GREET model. However, GREET does not include toxics, although in 2000, a version of GREET was developed which estimated air toxics using speciation factors. EPA assumes this was what was used. If that is the case, there are significant limitations which should be discussed. First, ethanol production is not included in the model. The model also used combustion emission factors for vehicles used in transport that are now significantly out of date, and assumed evaporative emissions of benzene were equivalent to levels of benzene in fuel. For refinery processes, the emission factors used are very old. As part of its analyses for last year’s draft proposed greenhouse gas rule, and the upcoming rule implementing requirements under EISA, EPA developed air toxic emission factors for upstream processes using the most recent available information. We recommend that NHTSA coordinate with EPA on updating upstream toxic emission factors.

Also, all upstream toxic emissions were assigned to refinery processes. EPA does not believe this assumption is reasonable as it means that there will be an over assignment of emissions to areas with refineries and an under assignment to areas without them.

Page 3-25: In section 3.3.2.2 “Results of the Emissions Analysis,” the text states “As discussed in Section 3.3.1, pollutant emissions from vehicles have been declining since 1970 and EPA projects that they will continue to decline. This trend will continue regardless of the alternative that is chosen for future CAFE standards” (p. 3-25). A similar statement is in 3.3.2.3.2 (p.3-28): “As with the criteria pollutants, current trends

in the levels of air toxics emissions would continue, with emissions continuing to decline due to the EPA emission standards despite a growth in total VMT.” In fact, Tables 3.3.-3 and 3.3.-5 show increases in VOC between 2025 and 2035 (and in the case of DPM, emissions increase in each analysis year in all scenarios, including the No Action). The incorrect statements in the text should be deleted, and the trend of increasing emissions in the later analysis years should be acknowledged.

### ***Potential Analysis of Model Year 2016-2020 CAFE Standards***

In several places throughout the DEIS, the text implies that in addition to evaluating several alternatives for model year 2011-2015 CAFE standards, the DEIS also includes analysis of future model year 2016-2020 CAFE standards (for example, in the third paragraph of the June 24, 2008 DEIS cover letter from Deputy Administrator James F. Ports, Jr., and in the titles to Table 2.5-8 and 2.5-9, and the titles to Figures 2.5-3, and 2.5-4). EPA was unable to determine from reading the DEIS if, in fact, new standards were analyzed for model years 2016-2020. NHTSA should clarify this issue in the final EIS, and to the extent potential CAFE standards were modeled for 2016-2020, such standard scenarios should be described in detail in the final EIS.

### ***Additional Specific Comments***

#### ***Chapter 1, pg. 1-6, Lines 26-29***

In order to address the limitations of the air quality modeling in the EIS, EPA recommends that these lines be revised as follows:

“EPA indicated that many of the factors that affect air quality, such as meteorology and atmospheric processes, will not be taken into account when evaluating human health and environmental impacts without a full-scale photochemical air quality modeling analysis. This limitation needs to be acknowledged. NHTSA agrees with EPA’s suggestion, and this limitation is acknowledged in Chapters 3 and 4.”

There is also no mention of this limitation in Chapter 4. Please repeat the limitation text in that Chapter.

#### ***Chapter 1, pg. 1-7, Lines 20-28***

It does not appear that NHTSA undertook a complete health impacts analysis in its analysis of alternatives. Instead, the Volpe model substitutes \$/ton values which reflect a measure of the monetized health related benefits associated with criteria pollutant emission reductions. The \$/ton numbers omit a number of unquantified health and environmental effects, and are therefore an underestimate of total benefits. A complete health and environmental impacts analysis would begin with full-scale photochemical air quality modeling to demonstrate the changes in ambient air pollution exposure related to the emission changes associated with each alternative scenario. These ambient



concentrations would then be fed through a health impacts model (EPA's Environmental Benefits and Mapping Analysis Program – BenMAP) to characterize population exposure and the change in health response associated with various health impact functions derived from the epidemiological literature.

Also, the \$/ton source needs to be cited throughout the document and characterized appropriately. EPA used these \$/ton estimates in its ozone NAAQS analysis to *supplement* the formal health impacts analysis – they were not used as a substitute for that analysis.

In light of these observations, EPA recommends the text be revised as follows:

“NHTSA's analysis of alternative CAFE standards incorporates the economic value of reduced damages to human health that would result from the reductions in emissions of criteria air pollutants and GHGs estimated to result from each alternative. These reductions in damages to human health are valued using estimates of damage costs per unit of emissions of each pollutant that approximate the chemical composition and geographic distribution of emissions generated by motor vehicle use and by production and distribution of transportation fuels. The dollar-per-ton estimates only provide a screening-level approximation of the potential value of health improvements associated with each alternative. They are not meant to replace a formal health impacts analysis that quantifies and monetizes health incidence such as premature mortality, chronic bronchitis, and respiratory and cardiovascular illnesses, but instead provide an estimate of health-related benefits in the absence of a formal analysis. It should also be noted that the monetized benefits associated with criteria pollutant reductions underestimate total benefits because the dollar-per-ton values used in this analysis omit a number of unquantified human health and environmental impacts.

The dollar-per-ton estimates used in this analysis were developed by EPA for use in a supplemental analysis of the benefits associated with the final ozone NAAQS RIA.[Insert footnote – see below] Human health is further discussed in Chapters 3 and 4.

[footnote] U.S. Environmental Protection Agency. August 2007. Benefit Per Ton Technical Support Document, Docket No. EPA-HQ-OAR-2006-0834, Proposed Regulatory Impact Analysis (RIA) for the Proposed National Ambient Air Quality Standards for Ozone. Prepared by: Office of Air and Radiation, Office of Air Quality Planning and Standards.”

*Chapter 3, pg. 3-13, line 34*

EPA recommends the following sentence be added to the beginning of the paragraph, to clarify that a formal health impact analysis was not done:

“Though we did not conduct a formal analysis of health impacts, the alternatives considered in this EIS will contribute to reductions in criteria pollutants that will improve public health and welfare.”

*Chapter 3, pg. 3-13, lines 36-40 and pg. 3-14, lines 1-3*

In order to accurately characterize ozone-related health impacts, EPA recommends adding the following sentence to the end of the ozone health effects description:

“There is also highly suggestive evidence that short-term ozone exposure directly or indirectly contributes to non-accidental and cardiopulmonary-related mortality.”

*Chapter 3, pg. 3-17, lines 40-43 & pg. 3-18, lines 1-2*

In order to better describe the limitations of the air quality analysis performed by NHTSA, EPA recommends the paragraph be revised as follows:

“Full-scale photochemical air quality modeling was not conducted for this analysis; therefore, the EIS is unable to characterize the ambient air quality impacts associated with each alternative. Instead, the action alternatives were analyzed by calculating the emissions from passenger car and light trucks that would occur under each alternative, and assessing the changes in emissions relative to the No Action Alternative. Lower emissions should result in lower ambient concentrations of pollutants on an overall average basis, which should lead to decreased health effects of those pollutants.

Full-scale photochemical air quality modeling is necessary to accurately project levels of PM<sub>2.5</sub>, ozone and air toxics. A national-scale air quality modeling analysis would analyze the combined impacts of each alternative on PM<sub>2.5</sub>, ozone, and air toxics (i.e., benzene, formaldehyde, acetaldehyde, ethanol, acrolein and 1,3-butadiene). The atmospheric chemistry related to ambient concentrations of PM<sub>2.5</sub>, ozone and air toxics is very complex, and making predictions based solely on emissions changes is extremely difficult.”

*Chapter 3, page 3-20, lines 7-16*

EPA recommends the paragraph be revised as follows in order to more clearly indicate that incomplete/unavailable information limitations affect the air quality and health impacts analysis done:

“As noted above, the estimates of emissions rely on models and forecasts that contain numerous assumptions and data that are uncertain. Examples of areas in which information is incomplete or unavailable include future emission rates, vehicle manufacturers’ decisions on vehicle technology and design, the mix of vehicle types and

model years, emissions from fuel refining and distribution, and economic factors. *Furthermore, a full-scale photochemical air quality modeling analysis to estimate the ambient concentrations of PM, ozone, and air toxics was not conducted. The lack of air quality modeling data limited the conclusions that could be made about health and environmental impacts associated with each alternative. Instead, a screening-level estimate of monetized health benefits, in the form of dollar-per-ton of criteria pollutant emissions reduced, was used to approximate the health benefits associated with each alternative. The use of such dollar-per-ton numbers, however, does not account for all potential health and environmental benefits, which leads to an underestimate of total criteria pollutant benefits.* Where information in the analysis included in the DEIS is incomplete or unavailable, the agency has relied on CEQ's regulations regarding incomplete or unavailable information. See 40 CFR § 1502.22(b). NHTSA has used the best available models and supporting data. The models used for the DEIS were subjected to scientific review and have received the approval of the agencies that sponsored their development. NHTSA believes that the assumptions that the DEIS makes regarding uncertain conditions reflect the best available information and are valid and sufficient for this analysis."

*Chapter 3, page 3-26 and 3-28*

NHTSA's estimates of criteria pollutant reductions (e.g., 54,000 - 232,000 tons of NO<sub>x</sub> in 2020) connected with the proposed CAFE standards appear to be larger than EPA would expect. EPA has not been able to replicate NHTSA's estimate, so we do not know for certain if there is an issue. The magnitude of the resulting inventory reductions suggests that NHTSA may be taking credit for criteria (and possibly toxic) emission benefits that occur internationally during crude oil transport to the U.S., rather than just counting the domestic benefits of reduced refinery and fuel distribution emissions. The lack of details in the DEIS does not allow EPA to comment for certain on how the NHTSA DEIS estimates were calculated, but the text in the Federal Register notice, page 24412, seems to support this suggestion:

"Reductions in domestic fuel refining using imported crude oil as a feedstock are tentatively assumed to reduce emissions during crude oil transportation and storage, as well as during gasoline refining, distribution, and storage, because less of each of these activities would be occurring."

An additional possible cause for the large emission reductions estimated by NHTSA is the use of the GREET model to generate those estimates. EPA has noticed that the heavy-duty truck, rail, and barge emission factors in GREET do not reflect the latest round of EPA emission standards that substantially reduce VOC, NO<sub>x</sub>, and PM emissions in future years (the heavy-duty highway 2007/2010 standards). Use of these more controlled emission factors would decrease the "No Action" emissions as well as emissions from the various CAFE alternatives, with the net result being smaller benefits from the program than estimated using an unmodified version of GREET. We suggest

NHTSA verify what standards are assumed in the version of GREET used for the DEIS, and modify as appropriate for the final EIS.

*Chapter 3, pg 3-27, Figure 3.3-2*

This figure, and others like it, suffers from a scale mismatch related to the tons associated with CO vs. each of the other criteria pollutants. The different reductions between alternatives for PM, NO<sub>x</sub>, SO<sub>x</sub>, and VOCs are not minor. However, the scale of the table gives this misimpression. EPA recommends that CO be decoupled from this table, shown separately, and the scale of the existing table be revised to more accurately show differences in the alternatives for the other criteria pollutants.

**It should be noted that all EPA comments made in regard to suggested Chapter 3 revisions apply to the appropriate sections in Chapter 4 and should be repeated there.**

*Appendix C*

The excerpted Cost and Benefit RIA chapters appear to have been pulled from an outdated version of the RIA. EPA recommends that the text be replaced with that found in the April, 2008 version of the RIA.

## **SUMMARY OF RATING DEFINITIONS AND FOLLOW UP ACTION\***

### **Environmental Impact of the Action**

#### LO-Lack of Objections

The EPA review has not identified any potential environmental impacts requiring substantive changes to the proposal. The review may have disclosed opportunities for application of mitigation measures that could be accomplished with no more than minor changes to the proposal.

#### EC-Environmental Concerns

The EPA review has identified environmental impacts that should be avoided in order to fully protect the environment. Corrective measures may require changes to the preferred alternative or application of mitigation measures that can reduce the environmental impacts. EPA would like to work with the lead agency to reduce these impacts.

#### EO-Environmental Objections

The EPA review has identified significant environmental impacts that must be avoided in order to provide adequate protection for the environment. Corrective measures may require substantial changes to the preferred alternative or consideration of some other project alternative (including the no action alternative or a new alternative). EPA intends to work with the lead agency to reduce these impacts.

#### EU-Environmentally Unsatisfactory

The EPA review has identified adverse environmental impacts that are of sufficient magnitude that they are unsatisfactory from the standpoint of public health or welfare or environmental quality. EPA intends to work with the lead agency to reduce these impacts. If the potential unsatisfactory impacts are not corrected at the final EIS state, this proposal will be recommended for referral to the CEQ.

### **Adequacy of the Impact Statement**

#### Category 1-Adequate

The EPA believes the draft EIS adequately sets forth the environmental impact(s) of the preferred alternative and those of the alternatives reasonably available to the project or action. No further analysis or data collecting is necessary, but the reviewer may suggest the addition of clarifying language or information.

#### Category 2-Insufficient Information

The draft EIS does not contain sufficient information for the EPA to fully assess the environmental impacts that should be avoided in order to fully protect the environment, or the EPA reviewer has identified new reasonably available alternatives that are within the spectrum of alternatives analyzed in the draft EIS, which could reduce the environmental impacts of the action. The identified additional information, data, analyses, or discussion should be included in the final EIS.

#### Category 3-Inadequate

EPA does not believe that the draft EIS adequately assesses potentially significant environmental impacts of the action, or the EPA reviewer has identified new, reasonably available alternatives that are outside of the spectrum of alternatives analyzed in the draft EIS, which should be analyzed in order to reduce the potentially significant environmental impacts. EPA believes that the identified additional information, data analyses, or discussions are of such a magnitude that they should have full public review at a draft stage. EPA does not believe that the draft EIS is adequate for the purposes of the NEPA and/or Section 309 review, and thus should be formally revised and made available for public comment in a supplemental or revised draft EIS. On the basis of the potential significant impacts involved, this proposal could be a candidate for referral to the CEQ.

\*From EPA Manual 1640 Policy and Procedures for the Review of the Federal Actions Impacting the Environment